CLAIMS

1. A solid electrolytic capacitor comprising:

a first porous sintered body made of a valve metal; and

a second porous sintered body made of a valve metal;

wherein each of the sintered bodies is flat and includes two principal surfaces; and

wherein the first sintered body and the second sintered body are spaced from each other in a predetermined direction perpendicular to a direction in which the two principal surfaces are spaced from each other.

2. The solid electrolytic capacitor according to claim 1, further comprising a package that collectively seal the first and the second sintered bodies.

3. The solid electrolytic capacitor according to claim 2, further comprising: an internal anode terminal electrically connected to one of the first and the second sintered bodies; and an external anode terminal electrically connected to the internal anode terminal and exposed from the package.

4. The solid electrolytic capacitor according to claim 3, further comprising: a dielectric layer and a solid electrolytic layer formed on one of the first and the

second sintered bodies; an internal cathode terminal electrically connected to the solid electrolytic layer; and an external cathode terminal electrically connected to the internal cathode terminal and exposed from the package.

5. The solid electrolytic capacitor according to claim 3, wherein the internal anode terminal includes a first anode rod and a second anode rod projecting in an opposite direction from said one of the sintered bodies, and wherein a projecting direction of the first anode rod intersects with the predetermined direction in which the first sintered body and the second sintered body are spaced.

6. The solid electrolytic capacitor according to claim 5, further comprising a conductor that electrically connects the first anode rod and the second anode rod to each other.

7. The solid electrolytic capacitor according to claim 6, wherein the conductor includes an anode metal plate fixed to a lower surface of each sintered body via an insulator.

8. The solid electrolytic capacitor according to claim 7, wherein at least part of the anode metal plate constitutes the external anode terminal.

9. The solid electrolytic capacitor according to claim 7, further comprising a cathode metal plate interposed

between the respective sintered bodies and the insulator, the cathode metal plate including portions that constitute the internal cathode terminal and the external cathode terminal, respectively.

10. The solid electrolytic capacitor according to claim 6, wherein the conductor comprises a metal cover for covering at least part of each sintered body.

11. The solid electrolytic capacitor according to claim 3, further comprising: two metal plates made of a valve metal respectively supporting the first sintered body and the second sintered body; and an anode metal plate to which said two metal plates are connected; wherein at least part of the anode metal plate serves as the internal anode terminal.

12. The solid electrolytic capacitor according to claim 11, wherein each of the sintered bodies includes an upper layer portion and a lower layer portion, the upper layer portion being greater in density than the lower layer portion.

13. The solid electrolytic capacitor according to claim 11, wherein at least part of the anode metal plate serves as the external anode terminal.

14. The solid electrolytic capacitor according to claim 11, wherein said two metal plates of the valve metal each are formed, at a lower surface thereof, with a conductor layer having higher solder-wettability than the valve metal, said metal plates of the valve metal being soldered to the anode metal plate.

15. A method of manufacturing a solid electrolytic capacitor, the method comprising the steps of:

compacting valve metal powder to form a porous compact;

positioning the porous compact on a metal plate with a bonding material containing valve metal powder; and

fixing the porous compact to the metal plate by sintering.

16. The method according to claim 15, further comprising the step of preliminarily sintering the porous compact before positioning the porous compact on the metal plate.

17. A solid electrolytic capacitor comprising:

a porous sintered body formed by sintering a compact made of valve metal powder;

a metal plate supporting the porous sintered body; and

a bonding material provided between the porous sintered body and the metal plate for fixing the porous sintered body to the metal plate;

wherein the bonding material is obtained by heating a paste containing valve metal powder having a particle diameter smaller than that of the powder used for forming the compact.

18. The solid electrolytic capacitor according to claim 17, wherein the compact is made of tantalum powder and has a density ranging from 5.5 to 8.0 g/cm^3.

19. The solid electrolytic capacitor according to claim 18, wherein the density of the compact ranges from 6.0 to 7.0 g/cm^3.

20. The solid electrolytic capacitor according to claim 17, wherein the compact is formed of one of niobium powder, niobium(II) oxide powder and niobium nitride powder, and has a density ranging from 2.3 to 4.5 g/cm^3.

21. The solid electrolytic capacitor according to claim 20, wherein the density of the compact ranges from 2.5 to 3.5 g/cm^3.

22. The solid electrolytic capacitor according to claim 17, wherein the compact is made of tantalum powder, the metal plate being made of tantalum, the powder contained in the paste being tantalum powder.

23. The solid electrolytic capacitor according to claim 17, wherein the compact is made of niobium powder, the metal plate being made of niobium, the powder contained in the paste being niobium powder.

24. The solid electrolytic capacitor according to claim 17, wherein the compact is made of niobium(II) oxide powder, the metal plate being made of niobium, the powder contained in the paste being one of niobium powder, niobium(II) oxide powder and niobium nitride powder.

25. The solid electrolytic capacitor according to claim 17, wherein the compact is made of niobium nitride powder, the metal plate being made of niobium, and the powder contained in the paste being one of niobium powder, niobium(II) oxide powder and niobium nitride powder.